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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/648,862	08/26/2003	Yaroslav M. Shuba	Shuba	3755

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EXAMINER	
TRIEU, THAI BA	

ART UNIT	PAPER NUMBER
3748	

DATE MAILED: 10/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/648,862	SHUBA, YAROSLAV M.	
	Examiner	Art Unit	
	Thai-Ba Trieu	3748	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-5 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 26 August 2003 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 08/26/03.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. IN THE ABSTRACT:

Since the abstract is too long, applicant is required to submit a substitute abstract to meet the requirement set forth below:

> Applicant is reminded of the proper language and format for an abstract of the disclosure.
>
> The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet ***within the range of 50 to 150 words***. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as ***"means" and "said," should be avoided***. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.
>
> The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. IN THE SPECIFICATION:

a. The disclosure is objected to because of the following informalities:

- On Page 5:

1. Line 4, ***"a"*** before ***"lids"*** should be deleted (for correcting grammatical error).

2. Line 11, ***"PREFERRED EMBODYMENT"*** should be replaced by **-- PREFERRED EMBODIMENT –** (for correcting typo error).

3. Line 16, ***"groove 28"*** should be replaced by – **groove 26** – (for correcting typo error).

4. Line 23 and 28, ***"lids 40 and 50"*** should be replaced by **– side cover lids 40 and 50 –** (for consistency of the whole specification).

5. Line 30, ***"grove 26"*** should be replaced by – **groove 26 -** - (for correcting typo error).

6. Line 31, ***"adge"*** should be replaced by – **edge --** (for correcting typo error).

- On page 6:

1. Line 19, ***"ambience conduit/orifice"*** and ***"ambience valve"*** should be replaced by **-- ambient conduit/orifice --** and **-- ambient valve –** (for correcting grammatical error).

2. Line 24, ***"lids (i.e., 40 and 50)"*** should be replaced by – **side cover lids (i.e., 40 and 50) –** (for consistency of the whole specification).

- On Page 7:

1. Line 19, ***"ambience orifice 72"*** and ***"ambience valve 82"*** should be replaced by **-- ambient orifice 72 --** and **-- ambient valve 82 –** (for correcting grammatical error).

2. Line 16, ***"ambience orifice 72"*** should be replaced by -- **ambient orifice 72** -- (for correcting grammatical error).

3. Line 20, ***"ambience valve 82"*** should be replaced by -- **ambient valve 82** – (for correcting grammatical error).

- On page 8:

1. Lines 7-8, ***"ambience orifice 72"*** and ***"ambience valve 82"*** should be replaced by -- **ambient orifice 72** -- and -- **ambient valve 82** – (for correcting grammatical error).

2. Lines 11 and 16, ***"ambience valve 82"*** should be replaced by -- **ambient valve 82** – (for correcting grammatical error).

3. Lines 12-13, ***"ambience orifice 72"*** should be replaced by -- **ambient orifice 72** -- (for correcting grammatical error).

Appropriate correction is required.

b. The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: Specifically, ***"timing physical connection***" is required to be incorporated with the specification.

Claim Suggestions

Applicant is suggested to correct the informalities in claims by the following:

1. Claim 1 should be replaced by following:

-- a four-cycle multi-chamber rotary internal combustion engine comprising:

a stator having **a** right prism shape exterior body and **a** hollow core formed by two concentric cylindrical surfaces which fluently transit one into the other via **a** ramp [[surfaces]] **surface** *(for correcting grammatical error)*;

a rotor having **a** cylindrical body of the same height as of said stator and **an** external diameter corresponding to [[the]] **a** diameter of **a** smaller concentric surface forming the hollow core of said stator *(for correcting grammatical error)*;

wherein said rotor has [[a radial rectangular grooves]] **at least one radial rectangular groove** along [[its]] **the rotor** whole height *(for correcting grammatical error)*;

[[a vane-type pistons]] **at least one vane-type piston** having **a** rectangular body with the same height as of said rotor and being positioned in said [[grooves]] at **least one radial rectangular groove** of said rotor *(for consistency)*;

wherein said [[pistons are]] **at least one vane-type piston is** provided with a means of moving in a radial direction within

direction with said grooves of said [[stator]] **rotor** with [[the]] **an** outer face tightly contouring [[the]] an inner surface *(for correcting grammatical error, for avoiding of lacking antecedent basis in claims, and for maintaining consistency);*

said rotor being positioned in said stator concentrically to cylindrical surfaces forming the hollow thereof; **and**

[[a side lids]] **at least one side cover lid** of said stator. –

2. Claim 2 should be replaced by following:

-- The four-cycle multi-chamber rotary internal combustion engine as claimed in claim 1, [[wherein a cavities]] **further comprising a cavity** within the stator [[made in the places where] **the inner surface of the stator has the same radius as that of the rotor form a combustion chambers]] wherein a radius of the inner surface of the stator is the same as a radius of the rotor, forms a combustion chamber** *(for correcting grammatical error and redundancy).* –

3. Claim 3 should be replaced by following:

-- The four-cycle multi-chamber rotary internal combustion engine as claimed in claim 2, wherein [[spaces]] **a space** between **an** outer surface of the rotor and **the** inner surface of the stator with **a** bigger radius form a working

[[chambers]] chamber *(for correcting grammatical error, and avoiding double citation).—*

4. Claim 4 should be replaced by following:

-- The four-cycle multi-chamber rotary internal combustion engine as claimed in claim 3, wherein said combustion [[chambers are]] **chamber is** connected with said working [[chambers]] **chamber** via openings in [[the]] **an** area of the ramp surfaces connecting the connecting two concentric cylindrical surfaces of said stator;

wherein timing [[physical connection]] of **compressed fuel mixture** between said combustion [[chambers]] **chamber** and said working [[chambers]] **chamber** [[via the openings]] is controlled by valves *(for correcting grammatical error and for maintaining consistency in claims).* –

5. Claim 5 should be replaced by following:

-- The four-cycle multi-chamber rotary internal combustion engine as claimed in claim 4, wherein [[intake of]] fuel mixture and [[exhaustion of waste gasses]] exhaust gases in and out of said working [[chambers]] chamber is [[made via valve-controlled openings]] **controlled by an intake valve and an exhaust valve positioned** nearby [[the]] **an** opening **of a power valve and an opening of compression valve**, connecting said combustion chambers and said working chambers *(for clarifying limitations of claim).* --

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Novas (Patent Number 2,672,282).

Novas discloses a device comprising:

a stator (1) having a right prism shape exterior body (See Figures 1, 2, and 4-7) and a hollow core (3) formed by two concentric cylindrical surfaces which fluently transit one into the other via a ramp surface (See 4-7B);

a rotor (19) having a cylindrical body of the same height as of said stator and an external diameter corresponding to a diameter of a smaller concentric surface forming the hollow core (3) of said stator (1) (See Figures 1, 2, and 4-7);

wherein said rotor has at least one radial rectangular groove (26) along the rotor whole height (See Figures 4-7);

at least one vane-type piston (27) having a rectangular body with the same height as of said rotor and being positioned in said at least one radial rectangular groove (26) of said rotor (19);

wherein said at least one vane-type piston (27) being provided with a means (28) of moving in a radial direction within direction with said grooves (26)

of said rotor (19) with an outer face tightly contouring an inner surface (See Figure 4);

said rotor (19) being positioned in said stator (1) concentrically to cylindrical surfaces forming the hollow thereof; and

at least one side cover lid (5,6) of said stator (1) (See Figure 1).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Person et al. (Patent Number 6,766,783 B1), in view of Grimm (Patent Number 3,568,645).

Person discloses a four-cycle multi-chamber rotary internal combustion engine comprising:

a stator (12, 14) having a right prism shape exterior body (See Figures 1 and 4) and a hollow core (See Figures 1 and 3) formed by two concentric cylindrical surfaces which fluently transit one into the other via a ramp surface (See Figures 3, 6A and 6B);

a rotor (26, 28) having a cylindrical body of the same height as of said stator and an external diameter corresponding to a diameter of a smaller concentric surface forming the hollow core of said stator (See Figures 2 and 6A-6B);

wherein said rotor has at least one radial rectangular groove (56A, 56B, 70 A, 70B) along the rotor whole height (See Figures 6A, 6B);

at least one vane-type piston (54A, 54B, 68A, 68B) having a rectangular body with the same height as of said rotor and being positioned in said at least one radial rectangular groove (56A, 56B, 70 A, 70B) of said rotor (26, 28);

said rotor (26, 28) being positioned in said stator (12, 14) concentrically to cylindrical surfaces forming the hollow thereof; and

at least one side cover lid (the front side of the housing 12, and the back side of the housing 14) of said stator (12, 14) (See Figure 1).

However, Person fails to disclose said at least one vane-type piston being provided with a means of moving in a radial direction within direction with said grooves of said rotor with an outer face tightly contouring an inner surface.

Grimm teaches that it is conventional in the rotary internal combustion engine art, to utilize a means of moving (Read as rollers 19) in a radial direction within direction with said grooves of said rotor with an outer face tightly contouring an inner surface (See Figures 1-3).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized the moving means, as taught by Grimm, to improve the movement of the vanes/pistons, in the Person device.

Claims 2-5 rejected under 35 U.S.C. 103(a) as being unpatentable over Person et al. (Patent Number 6,766,783 B1), in view of Grimm (Patent Number 3,568,645), and further in view of Schulz (Patent Number 939,751).

The modified Person device discloses the invention as recited above; however, fails to disclose a cavity forming a combustion chamber, a space forming a working chamber; and timing valves.

Schulz teaches that it is conventional in the rotary internal combustion engine art, to utilize a cavity within the stator wherein a radius of the inner surface of the stator (5) being the same as a radius of the rotor (8), forming a combustion chamber (23, 24); a space (9, 10) between an outer surface of the rotor (8) and the inner surface of the stator (5) with a bigger radius form a working chamber (9, 10); said combustion chamber (24) being connected with said working chamber via openings in an area of the ramp surfaces connecting the connecting two concentric cylindrical surfaces of said stator (5); wherein timing of compressed fuel mixture between said combustion chamber (24) and said working chamber (9, 10) is controlled by valves (29, 30, 31, 32); and fuel mixture and exhaust gases in and out of said working chamber (9, 10) being controlled by an intake valve and an exhaust valve (29, 30, 31, 32) positioned nearby an opening of a power valve and an opening of compression valve, connecting said combustion chambers and said working chambers (See Figures 1 and 3, Page 1, lines 9-112, and Page 2, lines 1-110).

It would has been obvious to one having ordinary skill in the art at that time the invention was made, to have utilized a cavity forming a combustion chamber, a space forming a working chamber; and timing valves, as taught by Schulz, to improve the efficiency of the modified Person device.

Conclusion

The IDS (PTO-1449) filed on August 26, 2003 has been considered. An initialized copy is attached hereto.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- Howitt et al. (US Patent Number 1,354,189) disclose a rotary internal combustion engine.

- Skagen (US Patent Number 3,549,289) discloses a fluid motor.

- Smolinski (US Patent Number 4,212,603) discloses a rotary vane machine with cam follower retaining means.

- Oh et al. (Pub. Number US 2002/0007815 A1) disclose O-ring type rotary engine.

- Al-Hawaj (US Patent Number 6,684,847 B1) discloses a radial vane rotary device.

- Ingo (Patent Number De 31 08 087 A1) discloses a four-stroke rotary engine.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thai-Ba Trieu whose telephone number is (703) 308-6450. The examiner can normally be reached on Monday - Thursday (6:30-5:00).

However, the examiner' s new telephone number (751) 272-4867 will become effective after the expected changeover date of November 22, 2004.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas E. Denion can be reached on (703) 308-2623. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TTB
September 28, 2004

Thai-Ba Trieu
Patent Examiner
Art Unit 3748